

Hoechst Celanese

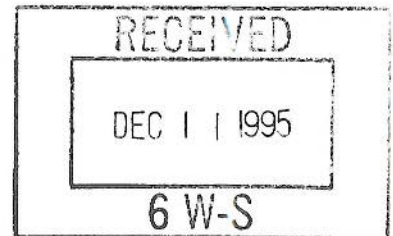
December 6, 1995
IOC-080-95

FEDERAL EXPRESS MAIL

Mr. Ben K. Knappe - Head
UIC Team
UIC, Uranium and Hazardous Waste Division
Texas Natural Resource Conservation Commission
12100 Park Circle
P. O. Box 13087
Austin, Texas 78711-3087

**Subject: WDW-14, WDW-32, WDW-49 and WDW-110
PROPOSED CLOSURE PROCEDURES
Hoechst Celanese Chemical Group, Inc.
Bay City Plant, Bay City, Texas**

Chemical Group
Hoechst Celanese Corporation
Bay City Plant
PO Box 509
Highway 3057
Bay City, TX 77404-0509



Dear Mr. Knappe:

Enclosed herewith are the proposed Closure Procedures to plug and abandon WDW-14 (WELL NO. 2), WDW-32 (WELL NO. 3), WDW-49 (WELL NO. 4) and WDW-110 (WELL NO. 1-A) which are provided for your review and approval. WDW-14 is scheduled to commence closure during the first quarter, 1996. The closure schedule for WDW-32, WDW-49 and WDW-110 will be submitted to the Agency as soon as they are finalized.

We hope that the presentation at your office on November 14, 1995 will facilitate the review process. Your earliest consideration, review and approval of the proposed closure procedures are appreciated.

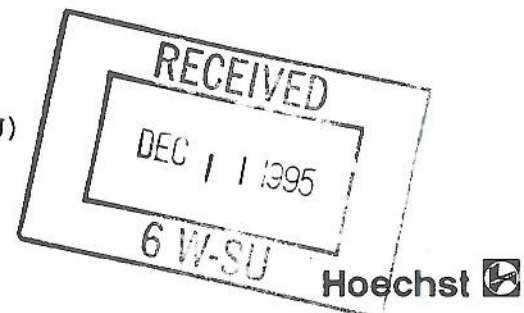
Please do not hesitate to contact me at 409/241-4197 or Mr. H. R. Horton at 409/241-4076 if you have questions concerning this matter.

Very truly yours

I. O. Coleman, Jr.
I. O. Coleman, Jr.

cc: Mr. Charles J. Green, Geologist
UIC Team
Texas Natural Resource Conservation Commission
P. O. Box 13087
Austin, Texas 78711-3087

Mr. Phil Dellinger
UIC State Programs Section (6W-SU)
Environmental Protection Agency
1445 Ross Avenue
Dallas, Texas 75202-2733





*Hoechst Celanese Chemical Group, Inc.
Bay City Plant, Texas*

*Closure Plan For Class I Injection Wells
WDW-14, WDW-32, WDW-49 & WDW-110*

*ECO Solutions, Inc.
9800 Richmond Avenue
Suite 320
Houston, Texas 77042
(713) 780-1955
FAX (713) 780-0870*



CLOSURE PLAN

SUMMARY

The following class I injection well closure plan was prepared for Hoechst Celanese Chemical Group's (HCCG's) facility located at Bay City, Texas. The proposed closure plan incorporates procedures to maximize the long term protection of the environment and significantly exceeds the minimum closure standards set by the TNRCC. These procedures include secondary cementing of the protection casing to insure zonal isolation of the injected waste and formation waters from USDWs.

Similar procedures are proposed for wells WDW-14, WDW-32, WDW-49 and WDW-110. Well schematics are included to illustrate the proposed plugging procedures. The schematics indicate section milling above the injection packers and perforating/squeeze cementing at the base of the surface casing(s).

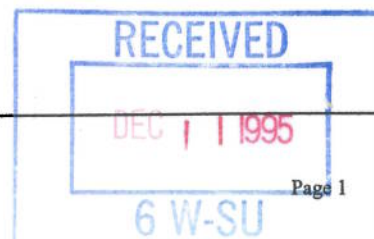
A high compressive strength cement slurry is placed in the annular area in selected intervals *behind* the protection casing. These areas are 1) the area above the injection interval or packer and 2) the area immediately beneath the surface casing.

There are two (2) common techniques of placing cement in these areas:

- a) *Squeeze perforations* - "shoot" holes in the protection casing at specified depths and then force high compressive strength cement through the perforations into the annular space, i.e. "squeeze cementing technique".
- b) *Section milling/underreaming* - physically remove a portion of the protection casing in key sections in the wellbore using a downhole mill. The cement behind the milled section is then underreamed out to the formation face. Finally, a column of high compressive strength cement is placed in the underreamed portion of the wellbore. The net result is a +/-50' continuous "block" of solid, high compressive strength cement is left where the protection casing had been.

The inside of the protection casing is then filled back to the surface with high compressive strength cement. Proper sequencing of this portion of the closure plan depends upon the technique implemented.

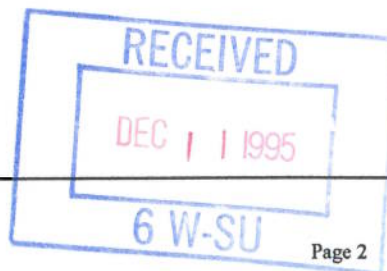
Closure on WDW-14 is scheduled to be completed by the end of the first quarter, 1996. The closure schedules of WDW-32, WDW-49 and WDW-110 will be submitted to the TNRCC as soon as they are finalized.



WELL CLOSURE PROCEDURES

SEQUENTIAL PROCEDURES

- 1) Submit closure plan to TNRCC for approval. Meet with the TNRCC if there are any questions or comments.
- 2) Prepare well location for field operations. Line and dike surface area surrounding wellsite- specifically in the area where the workover rig, pumps, tanks and pipe racks will rig up.
- 3) Move in and rig up workover rig and peripheral equipment.
- 4) Rig up slick line unit and go in hole with pressure recording memory tool. Set tool immediately above packer and measure stabilized bottom hole pressure.
- 5) Triple rinse injection string and flush annular area with 9.8 ppg brine.
- 6) Pull out of the hole laying down injection string and TIW seal assembly on pipe racks. HCCG personnel will remove injection string and TIW seal assembly from wellsite.
- 7) Pick up casing scraper and 2+7/8" drill pipe work string. Go in hole with casing scraper to the top of the injection packer. Pull out of the hole with same.
- 8) Move in and rig up wireline unit to set cement retainer. Pick up junk basket and gauge ring and go in the hole to the top of the injection packer. Pull out of the hole with the junk basket and gauge ring. Go in the hole with wireline cast iron cement retainer and set same at approximately 10' above the top of the injection packer. Pull out of the hole and rig down wireline unit.
- 9) Pick-up cement retainer shifting assembly with work string and go in the hole with same. Engage cement retainer with shifting assembly and test annulus to 500 psi to confirm that the cement retainer is properly set.
- 10) Rig up Halliburton, or equivalent service company, to squeeze cement (permanently abandon) the injection zone. Pumping through retainer fill injection interval with high compressive strength cement slurry. Close cement retainer and disengage from same. Leave a 50' column of cement above cement retainer and pull out of the hole with shifting assembly.



- 11) Pick up section mill and drill collars on work string and go in the hole with same. Mill out approximately 50' section above the top of the cement column. Pull out of the hole and remove section mill.
12. Pick up underreamer and drill collars and go in the hole with same. Underream sectioned interval out to approximately 14" diameter borehole. Pull out of the hole with underreamer.
13. Go in the hole open-ended to set cement plug #2. The plug will extend up across the sectioned interval and an additional 300' - 400' above the section. Rig up Halliburton, or equivalent, and set balanced cement plug with high compressive strength cement. Pull out of the hole and wait on cement plug #2 to cure (approximately 12 hours).
14. Go in the hole with 8+3/4" drill bit and drill pipe to confirm the top of the column of cement. "Dress off" top of plug #2 to confirm cement has had sufficient time to properly cure.
15. Rig up Halliburton, or equivalent, and set cement plug #3 with high compressive strength cement. Set balanced cement plug. Cement column to extend from the previous plug up to approximately 200' beneath the base of surface casing. Pull out of the hole and wait on cement plug #3 to cure (approximately 12 hours).
16. Go in the hole with 8+3/4" drill bit and drill pipe to confirm the top of cement column. "Dress off" the top of plug #3 to confirm that cement has had sufficient time to properly cure. Pull out of the hole.
17. Move in and rig up wireline truck to perforate for squeeze job at the base of the surface casing. Perforate the protection casing 2' at 4 shots per foot (8 shots) approximately 10' beneath the surface casing seat. Pull out of the hole and rig down wireline unit.
18. Rig up Halliburton, or equivalent, and set cement plug #4 with high compressive strength cement. Set balanced cement plug. Cement column will extend from the top of plug #3 back to the surface. Pull out of the hole. Apply pressure to cement column to squeeze cement out through the perforations. Wait on cement plug #4 to cure (approximately 12 hours).
19. Go in the hole with 8+3/4" drill bit and drill pipe to confirm the top of cement column. "Dress off" the top of plug #4 to confirm that cement has had sufficient time to properly cure. Fill balance of protection casing with high compressive strength cement as required. Pull out of the hole. Wash out blowout preventors.

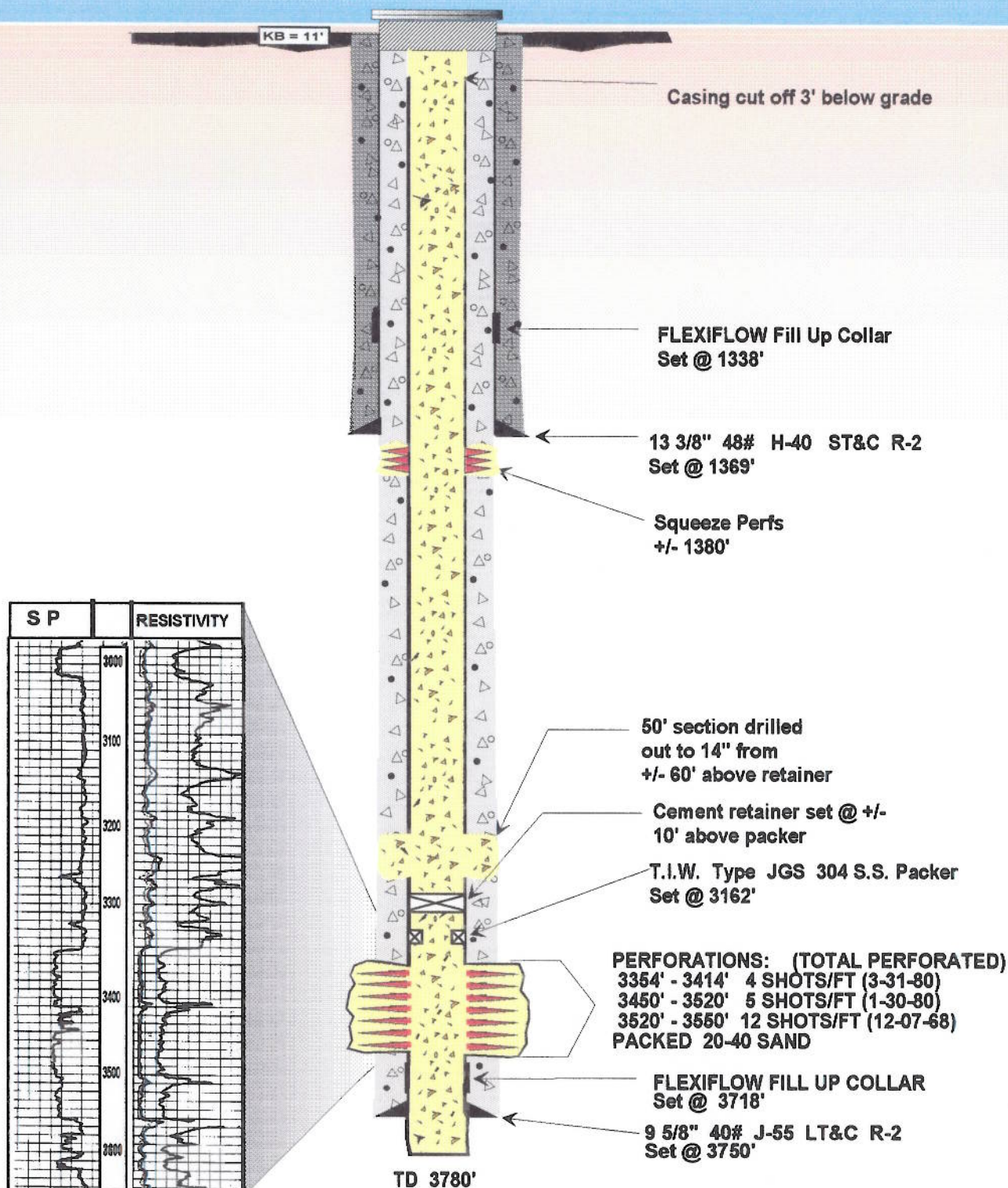


20. Rig down and release workover rig. Cut off casings 3' below grade and weld 1/2" steel plate over all casing strings. Inscribe plate with well identification and other pertinent data as required.
21. Prepare summary report for submittal to TNRCC and USEPA Region 6. *Project Complete.*



HOECHST CELANESE CHEMICAL GROUP, INC.

Bay City Plant
Disposal Well No. 2
WDW - 14



HOECHST CELANESE CHEMICAL GROUP, INC.

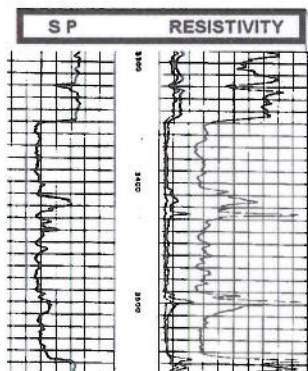
Bay City Plant
Disposal Well No. 3
WDW - 32

KB = 11'

Casing cut off 3' below grade

Squeeze Perfs @
+/-1312'

13 3/8" 48# H-40 ST&C
Set @ 1302'
Cemented to Surface



50' section drilled out to 14"
from +/- 3072' - 3122'

Cement retainer set @
+/- 10 above packer

T.I.W. TYPE JGS Packer @ 3192'

9 5/8" J-55 40# ST&C
Set @ 3245' Cemented to Surface

Bridge Plug
Original Packer & Screen

Fish
Cement Plug

4 1/2" 316 S.S 0.020 Screen
Set from 3315' - 3553'

Gravel Pack 40 - 60 Gravel

TD 3553'

ECO Solutions, Inc.

HOECHST CELANESE CHEMICAL GROUP, INC.

Bay City Plant
Disposal Well No. 4
WDW - 49

KB = 12'

Squeeze Perfs @
+/- 1400'

10 3/4" 32.75" H-40 ST&C
Set @ 1389'
Cemented to Surface

60' section drilled
out to 14" from
+/- 60' above retainer

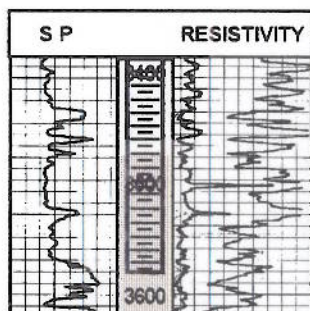
Cement Retainer Set @ +/-3306'

T.I.W. Type S, 316 S.S Packer
Set @ 3316'

7 5/8" 26.4#, K-55, To 3306' and
3 jts SCH 40 316 SS & FS to 3368'.
Cement circulated to surface.

Gravel Pack, 40-60 Gravel

4 1/2" 316 SS SCH 40 .020 Screen
Set from 3371.5' to 3579'

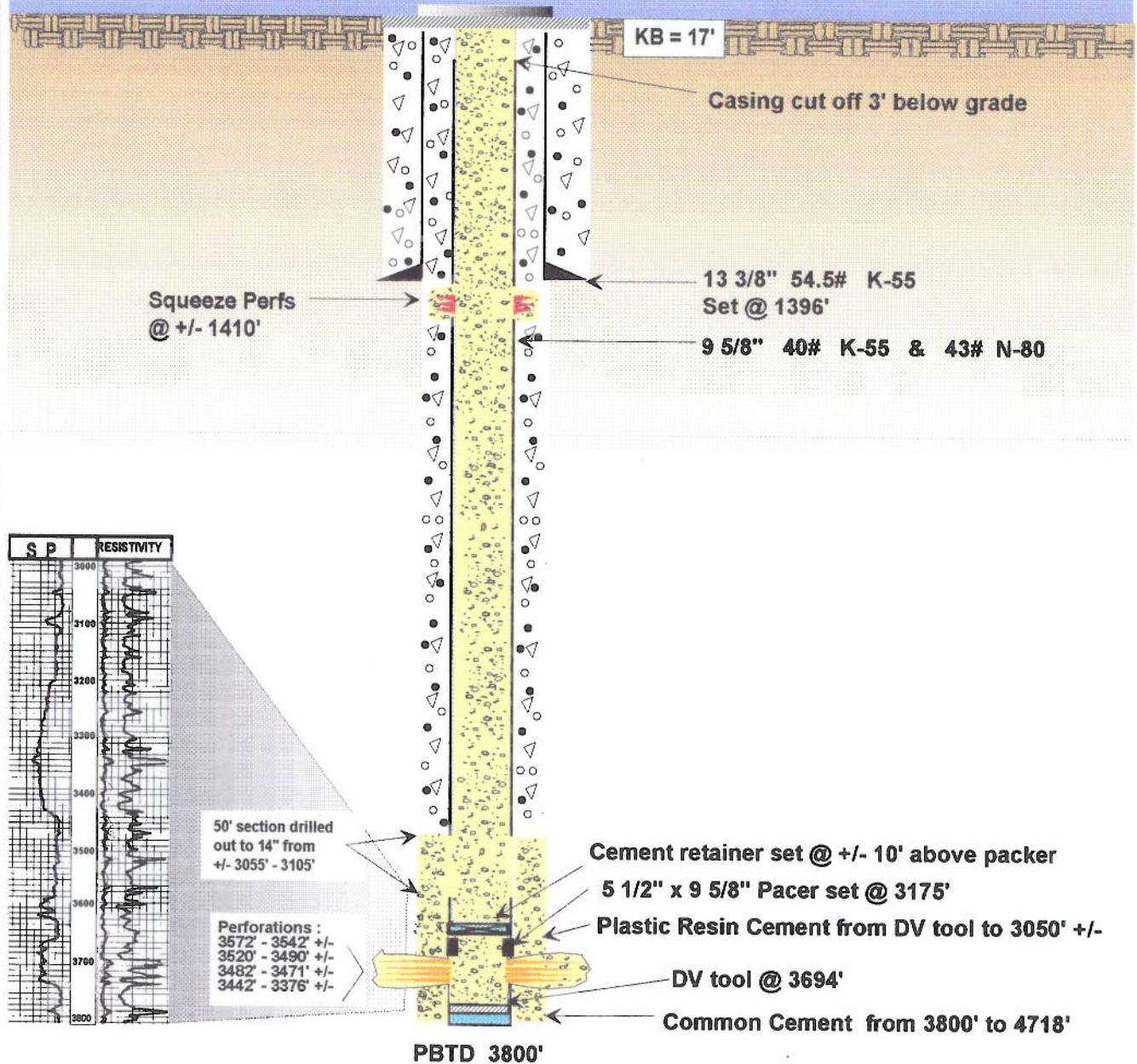


TD = 3630'

ECO Solutions, Inc.

HOECHST CELANESE CHEMICAL GROUP, INC.

Bay City Plant
Disposal Well No. 1-A
WDW - 110



ECO Solutions, Inc.

DESIGNER / DB / PA-110A4 / 10-05-95